CIOS 118
MATHEMATICS FOR COMPUTER TECHNOLOGY
Syllabus

Title and Designation: MATHEMATICS FOR COMPUTER TECHNOLOGY, CIOS S118 – UT1
Semester: Spring 2005
Credits: 3

Meeting Information
Days: Web Delivered
Time: Web Delivered
Dates: 1/18/2005 to 5/3/2005
Location: This is a completely Web delivered course; thus, you need not be physically present at a location for any component of the class. You may work at home, at work, at a UAS facility, or any location of your choice.

Instructor Information
Name: Mr. David A. Harper, Assistant Professor
Office Location: Room 205B
Office Hours: 1-4 pm Monday and Wednesday; 10 am to noon Tuesday and Thursday
Contact Telephone Number: (907) 747-7727
E-mail address: david.harper@uas.alaska.edu
Fax: 907-747-7768


Course Prerequisites: Math 055 or better

Course Description: This course is an introduction to how computers deal with numbers, calculations, and logic. Topics include: formats for data types, algebra as it applies to computing, writing Boolean expressions, logic and arguments, number bases, elementary statistics, and mathematics for computer graphics.

Course Objectives and Student Outcomes
At the conclusion of this course students should be able to:
✓ Convert numbers between the decimal, binary and hex systems of counting.
✓ Understand ASCII and byte-based representations.
✓ Define the terms algorithm, structure, function, pointer, stack, array, matrix, Boolean, recursion, sets, functions and induction.
✓ Apply the foundations of logic and complete a proof.
✓ Provide definitions for number types: integer, whole number, counting number and floating point.
✓ Round numbers given the data type.
✓ Perform basic mathematical reasoning such as proofs, decision trees, mathematical induction and structural induction.
✓ Do basic statistical analysis for: permutations and combinations, binomial coefficients, probability theory, mean, median and modal average, and normalization of data.
✓ Working with relations: properties, n-ary relations, closure of relations and equivalence of relations.
✓ Use Venn diagrams and other representational graphs.
✓ Solve basic decision science problems (tree logic, flowcharting, Boolean algebra, and GAANT and PERT charts).
Teaching Methods:
The objectives of this course will be accomplished using the following instructional methods:

- Online lectures via Macromedia Breeze
- practice exercises
- small group assignments
- discussion board (peer tutoring, assigned response, and question – answer)
- weekly get-together via Breeze Live (optional)

Student Performance Evaluation: To successfully accomplish the objective of this course, the student has the following responsibilities:

- visit the online site at UAS Online (https://uascentral.uas.alaska.edu/online/CIOS118-UT1?term=Spring-2005&behavior=UAS&session=251308)
- Complete all assignments on time and as specified
- Read the appropriate material and prepare for each test

A student’s final grade will be based upon the factors cited below.

- Small Group Projects -- 5%
- Tests (2) – 20%
- Final Test – 30%
- Homework Exercises – 40%
- Discussion Board Participation – 5%

**Note: The instructor will provide optional, additional exercises for students to do for extra credit. The maximum total extra credit a student may earn during the semester is 20%. The percentage value of each extra credit exercise will be noted on each assignment. Generally, each extra credit assignment will be worth 2%. Failed attempts at extra credit problems will not result in loss of points; thus, you may gain percentage points for correct solutions, but not lose points for erroneous answers.**

Grades:

- 90% or better = A
- 80% to 89% = B
- 70% to 79% = C
- 60% to 69% = D
- 59% and below = F

Course Procedures:

1. Assignments: The assignments are due on or before the announced due date. Points will be deducted for late assignments.
2. Procedures for Submitting Assignments: Assignments can be sent to me in two ways:
   - As an attachment to an email in PDF, MS Word (PC compatible), or Rich Text Format.
   - VIA FACSIMILE machine at 907-747-7768.
   All of your homework assignments that are e-mailed need to include the exercise number or project title in the subject heading and your full name at the bottom of the message. Faxes need the instructor’s name, course number, and homework assignment number (e.g. Attention: David Harper – CIOS 118-UT1 – Homework Lesson #5) with your complete name on each sheet.
3. Class Web Site: The class website is at https://uascentral.uas.alaska.edu/online/CIOS118-UT1?term=Spring-2005
4. Contact with Instructor: The instructor can be reached by e-mail (david.harper@uas.alaska.edu), or during office hours by phone at 907-747-7727. If you are unable to reach me during office hours, you may leave a phone message, and I will return your call.
5. **Viruses:** Whenever you swap files with other people over the Internet, there is the possibility of viruses. I recommend that you get virus protection and use it.

**Alternative Ways to Get Instruction/Help:**

1. Online Office Hour: The instructor’s Online office hour is Thursday evening from 7-8 pm. This is a BreezeLive site. The URL is: [http://breeze.uas.alaska.edu/r85887614](http://breeze.uas.alaska.edu/r85887614). Joining in during the office hour is *optional*.
2. Also, I am available for meeting sessions online on an arranged basis.

**Course Policies:**

1. You can check your grades at any time using the grade book in the class web site.
2. Please do not send me an e-mail asking if I received your homework. Keep a copy (electronic or other) of each assignment you submit. By doing so you will have a backup just in case your original assignment does not get to me.
3. I encourage peer tutoring on exercises. However, all students are expected to do their own work on tests. Do not violate Academic Dishonesty or Copyright Laws:
4. If you find it necessary to drop or withdraw from this course be sure to check the university schedule for a listing of drop and withdrawal dates. Usually, you must drop in the first week of the course and withdraw by the end of the 8th week.
5. Generally, emails that are sent with the subject of “Question” will be responded to within one working day of when they are received. The instructor is under no obligation to answer questions or provide assistance on weekends.

**Course Schedule**

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<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>Week 1</td>
<td>January 17</td>
<td>Lesson 1</td>
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<tr>
<td>Week 2</td>
<td>January 24</td>
<td>Lesson 2</td>
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<tr>
<td>Week 3</td>
<td>January 31</td>
<td>Lesson 3</td>
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<tr>
<td>Week 4</td>
<td>February 7</td>
<td>Lesson 4</td>
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<tr>
<td>Week 5</td>
<td>February 14</td>
<td>Lesson 5</td>
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<tr>
<td>Week 6</td>
<td>February 21</td>
<td>Test 1</td>
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<tr>
<td>Week 7</td>
<td>February 28</td>
<td>Chapter 1</td>
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<tr>
<td>Week 8</td>
<td>March 7</td>
<td>Chapter 1</td>
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<td></td>
<td>March 14</td>
<td>Spring Break—No School</td>
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<tr>
<td>Week 9</td>
<td>March 21</td>
<td>Chapter 2</td>
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<tr>
<td>Week 10</td>
<td>March 28</td>
<td>Chapter 3</td>
</tr>
<tr>
<td>Week 11</td>
<td>April 4</td>
<td>Test 2</td>
</tr>
<tr>
<td>Week 12</td>
<td>April 11</td>
<td>Chapter 4</td>
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<td>Week 13</td>
<td>April 18</td>
<td>Chapter 5</td>
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<tr>
<td>Week 14</td>
<td>April 26</td>
<td>Chapter 6</td>
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<tr>
<td>Week 15</td>
<td>May 2</td>
<td>Final Test</td>
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*This schedule is subject to change. You will be informed of any changes.*